

Imp.
Econ.
Mon.

With the Author's Respect

SPANISH EXPERIMENTS IN COINAGE.

BY

HENRY CHARLES LEA.

REPRINTED FROM APPLETONS' POPULAR SCIENCE MONTHLY
FOR SEPTEMBER, 1897.

3 1761 099384588

SPANISH EXPERIMENTS IN COINAGE.

BY HENRY CHARLES LEA.

MUCH instructive research has of late years been devoted to the history and inevitable results of paper inflation. The French assignats, our own continental money, colonial overissues, and the practically irredeemable currency of the banks of some of the States prior to the civil war have furnished subjects for elaborate discussion and have yielded their appropriate warnings; but I am not aware that the most remarkable and significant of all attempts to create and sustain fiat money has ever received the attention which is its due. I term it the most remarkable because it was made with coin and not with paper, and the vitiated currency was comparatively small in amount, because it was carried on for more than two centuries with true Spanish persistency, and because it permanently and disastrously affected the destinies of a great nation. Many causes contributed to the decadence of Spain, but, after the expulsion of the Jews and Moors, none perhaps did more to destroy its industry and commerce than its vicious currency legislation. The story is a long one, and I can here touch only on its more salient points. If some of the measures adopted should seem incredibly violent, it must be borne in mind that they were the devices, not of rude and unlettered savages, but of the best trained and most experienced statesmen of the land vainly seeking to escape the consequences of the first fatal step in the wrong direction. The lesson taught is the more impressive from the fact that, in the sixteenth century, Spain was by far the richest and most powerful state in Europe, practically owning Italy through her hold on Naples, Milan, Sicily, Sardinia, and Corsica, and mistress of the wealthy provinces of the Netherlands. She, moreover, enjoyed the monopoly of commerce with the New World and its stores of precious metals; and this enormous power, military and financial, was wielded by an absolute monarch who combined the legislative and executive functions unhampered and unrestrained. If ever a successful attempt could be made to overcome the self-acting laws which govern trade it could be made by Philip II and his successors.

Like all other mediæval kingdoms, Castile had had ample experience of the evils of an uncertain standard of value. In the latter half of the fifteenth century the feeble Henry IV, among other devices to secure the allegiance of faithless magnates, parted freely with the right to coin money, until there were about a hundred and fifty private mints scattering their issues throughout the land. The crown itself reduced the standard of gold coin to 7 carats, while the irresponsible private coiners debased it to whatever their cupidity dictated. When Ferdinand and Isabella came to the throne their resolute sagacity speedily put an end to this

deplorable condition. In their final legislation the gold standard was fixed at 23½ carats; that of silver at the one traditional in Spain known as 11 *dineros* and 4 grains, equivalent to 0·925 fine. The marc, or half pound, of gold, containing 4,608 grains, was worked into 65½ *excelentes* or ducats, also known as *escudos* or crowns. The marc of silver was worked into 67 *reales* or ryals. The monetary unit was the *maravedi*, of which there were 34 to the ryal and 374 to the crown, there being thus 11 ryals to the crown. For convenience in small transactions there was an alloy known as *vellón*, consisting of 7 grains of silver to the marc of copper, the marc being worked into 192 *blancas*, the blanca being half a maravedi, and the value of the marc of alloy and the cost of coinage being reckoned at 96 maravedis.*

In 1537 Charles V reduced the standard of the gold crown to 22 carats and its weight to 68 to the marc, diminishing its value to 330 maravedis, which he says brought it to an equality with the best coinage of France and Italy. In 1552, moreover, he reduced the silver alloy in the marc of *vellón* from 7 to 5½ grains, giving as a reason that there had been a profit in the exportation of the *blancas*, rendering them scarce at home. Thus far there had been no serious tampering with the currency, but not long after this, in 1566, the necessities of Philip II led him to seek relief in debasing the minor coinage. It is true that he was the richest monarch in the civilized world; that, besides his revenues from his European dominions, the crown claimed twenty per cent of all the precious metals mined in the Indies and ten per cent seigniorage for minting the rest; but the Venetian envoy Paolo Tiepolo tells us in 1565 that his expenditure for interest alone was 5,050,000 ducats per annum, which, when capitalized at eight per cent, amounted to 63,000,000 ducats of indebtedness—a sum incredible even to the Italian financiers of the period. He had little scruple as to the means of alleviating the burden. In 1559 he had experimented with methods suggested to him of issuing money falsified with a certain powder combined with quicksilver, which when rubbed over copper gave it the semblance of silver, and was proof, as we are told, against the touchstone and the hammer, but not against fire. One inventor of this promising

* It will perhaps facilitate the comprehension of the Spanish coinage to remind the reader that the *peso* or *real de ocho*, the "piece of eight," containing 8 ryals, is the Spanish dollar, adopted as our monetary unit by act of Congress in 1786. The ryal is thus one eighth of a dollar, or 12½ cents, well known to the older generation, when our silver currency was almost exclusively Spanish or Mexican, as the "ninepence" of New England and Virginia, the "shilling" of New York, and the "elevenpenny bit" shortened to "levy" in Pennsylvania, or to "bit" in the West and Southwest. Our "quarter" was the two-ryal piece or *peseta*, and the "pistareen," which rated at 20 cents, was the similar coin of an inferior currency, which, as we shall see hereafter, was known as "provincial."

The maravedi, as the thirty-fourth part of the silver ryal, was equivalent to nearly three eighths of a cent.

scheme, named Tiberio della Rocca, lost Philip's favor through a quarrel with the royal confessor; another one, a German named Peter Sternberg, was more fortunate, and secured payments amounting to 2,000 ducats for his discovery; but, although every effort was made to keep the matter secret, the Córtes got wind of it, and their remonstrances forced the abandonment of the scheme.

Compared with this wholesale fraud, an enlargement of the token coinage of base metal might well seem harmless, and it is a striking proof of the dangers attendant on any vitiation of the currency that consequences so deplorable and so lasting should have sprung from a source apparently so trivial. In 1566 Philip ordered the coinage of a new alloy, to be known as *moneda de vellón rica*, with a larger proportion of silver—98 grains to the marc of copper, or about $\frac{1}{47}$. The coins were all small: *quartilos*, 80 to the marc, to be current for a quarter of a ryal (about three cents); *quartos*, 170 to the marc, worth four maravedis (about a cent and a half); and *medios quartos*, 340 to the marc, worth two maravedis. At the same time the old *blancas*, two to the maravedi, were retained, but the silver alloy was reduced to four grains in the marc; and the number to be worked from the marc was increased to 240, augmenting the profit on every marc by a ryal and a quarter. What amount of this new vellón coinage was poured forth from the mint we have no means of ascertaining, but there can be little doubt that it was as great as the rude mechanical facilities of the age were capable of producing, for Philip's necessities were ever growing, what with the construction of the Escurial, the perpetual drain of the Flemish revolt, the maintenance of the religious wars in France, the conquest of Portugal, the crusade which brought the triumph of Lepanto, the collapse of the Armada, and other ceaseless efforts, prompted by zeal for the faith and thirst of aggrandizement. Yet the infiltration of the currency with these little debased coins was a slow process, and its effects were correspondingly deferred, but they manifested themselves at last, and the *calderilla*—as this coinage came to be popularly designated—grew to be a load which the ablest statesmen of Spain for a century vainly endeavored to shake off. Apparently the process of manufacture became too slow to supply the increasing wants of the treasury, for we hear in 1602 of a restamping of the vellón coinage, doubtless to give it an increased fictitious value. At the same time Philip III made a new issue of pure copper, to the amount of 2,448,000 ducats, working 280 maravedis to the marc, the cost of metal and coinage being only 80 maravedis. Prices rose, and there was general discontent, voiced by the learned historian Mariana in a tract on the coinage written with so much vigor that it cost him an imprisonment by the Inquisition. Thus the reservoir became filled to overflowing, and the inevitable depre-

ciation commenced. To arrest it Philip III, in 1619, solemnly decreed that there should be no more vellón money coined for twenty years; but financial promises of this nature are made to be broken, as is witnessed by Philip IV, in 1632, renewing the pledge conditionally for another twenty years. In spite of these promises, the vellón fell to a discount. There was no formal suspension of gold and silver payments; the silver fleet from Mexico and the galleons from Tierra Firma yearly poured into Spain the treasure won from the mines of the New World; but all the power of an autocratic sovereign could not maintain the parity of the currency. The inequality became so firmly established that it had to be recognized, and Philip IV, in 1625, endeavored to regulate it by a decree permitting a difference of ten per cent. Beyond this any transaction entailed on the receiver, for a first offense, the forfeiture of the principal with a fourfold fine, applicable in thirds to the informer, the judge, and the fisc; for a second offense, the same, with the addition of six years' exile. At the same time it was enacted that no one could demand gold or silver who had not given them, and no obligation to pay in gold or silver was lawful unless gold or silver was lent. These provisions show that already the vellón coinage had risen from its function as a token currency in petty dealings, and was rapidly becoming the standard medium of exchange in all commercial transactions. It is as such that we shall have henceforth to consider it, and it is to this that it owes its importance.

The situation was growing insupportable. Commerce and industry were equally stagnant. No land in Europe had greater resources than Spain in the fine wools of Castile, Aragon, and La Mancha; the flax and hemp of Asturias, Catalonia, Galicia, and Leon; the excellent silk of Murcia and Valencia; the iron, steel, and timber of Navarre, Guipuscoa and Biscay; the wines and fruits of Andalusia; but these were all exported as raw materials, and though the trade of the Indies was a jealous monopoly, half the goods sent thither in the fleets were the property of Hollanders, under the names of Spaniards, although Spain was at war with Holland. Partly this was attributable to the disordered currency, and the communities throughout the Peninsula supplicated the crown for relief. There was but one way to obtain this—by retracing the vicious course of the last half century, and the attempt was heroically made. By a *pragmatica* of August 7, 1628, it was decreed that after the day of publication all the vellón money should be reduced one half in value. To diminish the loss to the holders a complicated arrangement was ordered, by which one half of the depreciation should be made good to them by their towns and villages, and in view of the sacrifice thus imposed on the nation the royal faith was solemnly pledged by Philip IV, for himself and his successors, with all the force of a compact be-

tween the crown and the people, that the value of the vellón coinage should never again be tampered with, either to raise or to depress it. After this, any transaction disturbing the parity of the various coinages was declared an offense subject to the severest punishment and to render the measure effective the sternest penalties were directed against the introduction into the kingdom of foreign vellón money. The profits on this had already called forth the most vigorous efforts of repression, and these were now sharpened by declaring it to be a matter of *lèse majesté*, and subjecting it to the pains of heresy—death by fire, confiscation of all property, and disabilities inflicted on descendants to the second generation. Any vessel bringing it, even without the knowledge of the master, was forfeited; an unsuccessful attempt to import it was punished with death, and knowledge of such attempt without denouncing it incurred the galleys and confiscation. For a while, in fact, the crime was made justiciable by the Inquisition, which was a tribunal inspiring far greater popular dread than the ordinary courts. Evidently the law-making power in Spain had few scruples, and no constitutional limitations in its control over the currency.

Yet with all its power it might as well have attempted to control the tides or the winds, and the solemn pledges of the throne were not worth the paper on which they were printed. Richelieu was pressing Spain hard, and the condition of Spanish finance was becoming more and more desperate. Recourse was again had to a forced loan under the device of another inflation of the currency. A royal *cédula* of March 12, 1636, called in all the restamped vellón; from the day of publication of the edict no one was to pass it, or spend it, or pay it out, but was to convey it to the nearest mint, where he would receive its current value; and whoever, after eighty days, was found in possession of any of it incurred the severe penalties decreed against the holders of unlawful money. Having thus provided for obtaining possession of all the coinage, the mints were set to work restamping it with a valuation threefold that which it had borne: the *quarto*, thus far current for four maravedis, was raised to twelve, and the other coins in proportion, while death and confiscation were threatened for any violation of the coinage laws. The result of this arbitrary creation of value is seen in the edict of April 30th of the same year, permitting a premium on gold and silver of twenty-five per cent until the arrival of the galleons, after which it was to be reduced to twenty; and that this was below the ruling market rate is assumable from a sharpening of the penalties provided for those who should demand or accept a higher premium. Six months later an effort was made to bring the precious metals to par by suspending the permission to exchange them at a premium, but the distress caused by this suspension was so severe

that a decree of March 20, 1637, renewed the recognition of twenty-five per cent premium, and added that in the larger cities *casas de diputación*, or exchanges, could be established, where transactions could be negotiated at twenty-eight per cent, with a brokerage of one quarter or one half. The extreme importance attached to regulating the premium is visible in the punitive clauses of the edict. Any deviation from the established rate was classed with treason, irrevocably punishable with confiscation, disability for office, and personal infamy. In prosecutions all reasonable means of defense were withdrawn from the accused ; the names of witnesses were kept secret, and judicial forms were not to be observed. Even ambassadorial immunity was set aside ; the foreign ministers resident in Madrid were liable to accusation, when the king would determine as to their imprisonment and punishment.

This was speedily followed by a reaction. Of course, there were two parties in Spain, as elsewhere—inflationists and contractionists—and the policy of the state fluctuated as one or the other obtained preponderance with the king, or rather with his all-powerful minister, the Count-Duke Olivares. The contractionists now had control, and their views were expressed in a *pragmatica* of January 29, 1638, which lamented the misfortunes brought upon the land by the superabundance of vellón money which had injured commerce, had raised extravagantly the prices of the necessaries of life, and had driven silver out of circulation, depriving it of its natural function as money and converting it into a commodity to be bought and sold, while the only currency was the debased coinage, fabricated for the most part by the enemies of Spain, eager to gain the enormous profits accruing from its manufacture. As this, if unchecked, may work the ruin of the kingdom, the king declares that he has had the matter repeatedly discussed by his ministers, and as the result he orders that all the unstamped vellón money shall be melted down into bullion and be sold for silver, the proceeds being used to purchase more of the precious metal. It is expected that the vacuum thus created will bring silver into circulation, and to aid in this all the bullion brought by the galleons shall be coined ; moreover, the savage edict of 1628 against the introduction of vellón is repeated ; even the importation of copper is prohibited, and the laws forbidding the export of the precious metals are ordered to be enforced with the utmost rigor.

Had this policy been steadily pursued, perhaps it would in time have restored health to the currency, but it was neutralized by the financial exigencies of the state, which kept the mints busy in turning out debased coinage. It was impossible under the circumstances for the contractionists to win more than a temporary ascendancy, and with the progressive dilution of the currency the

premium on the precious metals obstinately kept advancing, in spite of the laws which punished such traffic as a crime. A decree of January 21, 1640, declares that this has become more inexcusable in view of the large amount of silver brought by the galleons in 1639 and the activity of the mints in coining vellón. To render its chastisement more certain, the rate of twenty-eight per cent is permitted in open market, but only for four months, after which it will be lowered; special judges are provided whose sole business shall be to try infractions of this law; every case that is heard of shall be prosecuted, and negligent judges shall be severely punished. The laws forbidding the export of the precious metals shall be still more vigorously enforced, especially those which require merchants bringing foreign goods into the country to take away an equivalent amount in merchandise.

The revolt of Portugal and Catalonia brought fresh financial complications, and recourse was again had to the ruinous expedient of a further debasement of the currency. A *cédula* of February 11, 1641, orders all the four-maravedi vellón pieces to be surrendered to the mints, where they will be paid for at their current value; this is to be done within thirty days, after which they can not be paid out or otherwise used. They are then to be restamped and issued at the valuation of eight maravedis; all other restamped vellón is to be surrendered by May 15th, after which it is to be no longer current, and disobedience of these orders is visited with death and confiscation. The natural result of this measure is seen in a decree of September 5th of the same year, limiting the premium on specie to fifty per cent until the arrival of the silver fleets. That this was below the market rate is shown in the prohibition of all indirect ways of evasion and of dealing in futures. How this condition affected all transactions, large and small, and how business was conducted under the double standard, are illustrated in some statements now before me of the expenses of the Supreme Council of the Inquisition about this time. After summing up the aggregate of the salaries and other items, in one case twenty-eight per cent and in another fifty per cent is added to show the total amount to be provided in vellón. When governmental outlays were thus increased we can not wonder at the struggle to keep down the premium on the one hand while stimulating it on the other by constant dilutions of the currency. The situation affords a singularly forcible illustration of the power possessed by an inferior money to force a superior one out of circulation. The largest of the debased coinage was only a piece of a quarter of a ryal, equivalent in our modern American system to three cents, yet it had completely demonetized silver and gold, and had become the practical standard of value. The Spanish possessions were the chief source from which the civilized world obtained its supply of the precious metals, yet

Spain, in spite of the most arbitrary measures, could retain none of them within her borders. So scarce had they become that for twenty years, from 1623 to 1642, there had been repeated decrees forbidding the use of gold and silver in the arts—their melting and fashioning by artisans, even their employment for plating and gilding and in embroidery. In 1642 these laws were supplemented by others prohibiting the sale of silver plate except to be broken up for coinage, and owners were tempted to bring it to the mints with the promise of a bonus of five per cent in vellón, in addition to the coin that it would yield. At the same time the laws against exportation were rendered still more rigorous, suspending even licenses to carry silver away for the royal service in Flanders and Italy.

The contractionist policy was now granted another trial, and a comprehensive scheme was evolved to get rid of the intolerable burden and bring all the various kinds of coinage to a parity. The partial attempt of 1628 had proved a failure; but if all the base money in the land could be controlled, there was reasonable prospect that another effort might be successful. To accomplish this a *pragmatica* was signed August 31, 1642, and sent under seal to the local authorities everywhere with instructions to open it on September 15th. At the same hour throughout Spain they were to go to the shops of all bankers, brokers, agents, traders, etc., seize whatever vellón money they should find, weigh it, register it, and convey it to a secure place, where it was to be kept under three padlocks, the keys being held by as many officials. When this was done they were to proclaim that the value of all vellón money was reduced to one sixth: the piece that had been circulating for twelve maravedis was in future to be worth but two, and so forth. All discount or premium between the metals was prohibited for the future, under the customary severe penalties, and it was hoped that the general benefit thus derived to the community at large would compensate for the losses inflicted on individuals, but to lessen these there were vague promises held out of satisfaction to be adjusted by the registry of the amount of vellón seized; and it was suggested that the king would consider any propositions made by those who should prefer honors or privileges or some other advantages in lieu of satisfaction.

Apparently it was soon found that something more was needed to bring the refractory metals closer together, and a *cédula* of December 23d endeavored to accomplish this by diluting the silver coinage. The marc of silver, in place of furnishing sixty-seven ryals, was ordered to be worked into eighty-three and one *quartillo*, thus diminishing the value of the ryal by twenty-five per cent; and in accordance with this, the existing *pesos*, or pieces of eight, were declared to be worth ten ryals, the profit on those in private hands being generously left to the holders. Gold was

more simply treated by marking up the crown from 440 to 550 maravedis, and by a subsequent decree of January 12, 1643, to 612. The effect of this on the specie premium was, however, neutralized by diminishing from 98 grains to 75³, the amount of silver to the marc of copper in the *moneda de vellón rica*, and holders of the white metal were tempted to have it thus employed by offering to coin it for them in vellón without charge of seigniorage.

Taken as a whole, these decrees formed but a halting measure of contraction; but, even as it was, it brought a strain too sudden and severe to be endured, and the effort was soon abandoned. A *pragmatica* of March 12, 1643, announced that the vellón coinage (except some recent issue by the mint of Segovia) should in future be current at a fourfold increase of value, the piece of two maravedis being raised to eight and the rest in proportion. The dilution of the silver coinage was similarly revoked, or at least suspended until the arrival of the fleet; the pieces of eight were to be current for eight ryals and no more, while the gold crown was reduced to 510 maravedis. As usual, the royal word and faith were pledged that there should be no further variation in the value of the vellón coinage, and that it should remain forever on the basis then assigned to it. Of course, the premium on the precious metals reappeared, and efforts to repress it by law were vain. It had to be recognized, and in 1647 a decree permitted it to the extent of twenty-five per cent, with stern punishment for those who should exceed the limit.

There could be no prosperous trade subject to such fluctuations in the standard of value, and the royal revenues must have suffered accordingly, for the next change was distinctly a method of raising money. The old *calderilla* coinage of Philip II had remained thus far undisturbed, and now by a *cédula* of November 11, 1651, all the rest of the base coin was restored to the value which it had borne prior to the reduction of 1642. The profit of this increase was reserved to the crown by requiring all holders of vellón to bring it to the mints within thirty days, after which it was demonetized and could no longer be used as currency. They were to receive its present value in the restamped issue at the new rate, and any one hoarding or passing the old money after the expiration of the limit incurred death and confiscation. The premium on specie, in spite of the law of 1647, had already reached fifty per cent, and the sternest penalties were decreed to prevent its rising above that figure—for a first offense, confiscation and six years of *presidio* (service in the African forts) for nobles, confiscation and six years of galleys for plebeians; for a second offense, death without distinction of rank. If absolute power could regulate values, Spanish thoroughness would have accomplished it.

Kings may propose, but in matters like this it is the people that dispose. The natural result of this measure was to drive not only

the precious metals but even the *calderilla* out of circulation. It required only six months to demonstrate the error committed, and a heroic effort to bring some sort of order into the medium of exchange was made in a *pragmatica* of June 25, 1652. Under this the old *calderilla* remained unchanged, but the *vellón grueso*, or large coinage, which had been advanced in value six months before, was reduced to one fourth, at which it was to be current until the end of the year, and on January 1, 1653, it was to be demonetized and its use prohibited under the severe penalties for passing false money. The plan of seizing it all and sequestering it at a given hour throughout Spain was adopted, but the crown proposed to assume the loss, not only on about seven millions of the restamped coin in the treasury, but by giving to those who surrendered it assignations on the tobacco tax, bearing five per cent interest. All arrears of taxes were also receivable in it for two months, and various other methods were offered of relieving the community. All the *vellón grueso* thus received was to be melted down, and to make a market for the copper the laws prohibiting its importation, even in the shape of manufactured articles, were to be strictly enforced. It was argued that when this, which through its superabundance had caused so much trouble, was out of the way, there would remain only the *calderilla*, which would all be needed for petty traffic, so that for larger transactions the precious metals would come forth and circulate abundantly at par, compensating the nation for the losses and sacrifices entailed by the measure.

This was a bold attempt in the right direction, but it was too sudden and too severe to be successful. It must have caused abundant ruin and distress, and the clamor for relief must have become irresistible, for in less than five months another edict was issued (November 14th), announcing a complete reversal of the means proposed for attaining the end in view. This time the *vellón grueso* was retained as money and the *calderilla* was proscribed and demonetized on the spot. Those who should register what they held within fifteen days and surrender it within two months were promised the same satisfaction as that offered in the previous decree to the holders of *vellón*, and any one in whose hands it should be found after sixty days was liable to the penalties for circulating forbidden money. This reduction in the base currency, together with the large amount of the precious metals in the country and the yearly accessions by the fleet, it was argued, deprived any difference in value of all excuse. As this measure was the ultimate remedy whereby to obtain absolute parity between them, any deviation from such equality was declared a species of treason. Any premium or discount, however small, exposed all participating in it, whether as principals or brokers, to confiscation and deprivation of office and of citizen-

ship. A special court was established for the prosecution of such cases, in which the trial was to be secret and the names of the witnesses withheld from the accused. Judges everywhere were ordered to see that prices were reduced by one third, and all outstanding debts and obligations were required to be settled at the same reduction.

This fresh disturbance of all business relations was as fruitless as its predecessors. The *calderilla* thus called in was not melted down but was restamped, and by a decree of October 22, 1654, was received at its old valuation. Large amounts had apparently been retained by the people in spite of the threatened penalties, and this they were told would be receivable for dues to the fisc at one half its nominal value, or might be taken to the mints and by exchanged for half the amount in the restamped coin. Forty days were allowed for this, after which its possession involved confiscation and six years of *presidio*, or galleys.

After this there was a pause in legislation until September 24, 1658, when an attempt was made to unify the minor coinage by withdrawing the *vellón grueso* and substituting a new copper issue of the same weight and nominal value as the *calderilla*, so that there should be but one kind of currency. To check the temptation to import imitations of this, the same savage penalties as before were re-enacted—confiscation and the stake, with the forfeiture of any vessel bringing it. The *vellón grueso*, however, refused to be withdrawn, and on May 6, 1659, a compromise was attempted by reducing it in value one half. Moderate as was this contraction of the currency, it served merely as a prelude for further inflation. Although the Peace of the Pyrenees, in 1659, might be expected to lighten the financial necessities of the state, a *pragmatica* of September 11, 1660, under pretext of providing a currency lighter, easier of transport, and more convenient for use, ordered all the *vellón grueso* to be called in and reworked, so that the marc of copper in place of producing 34 pieces of 2 maravedis should furnish 51 pieces of 4, thus trebling its nominal value. This must have called forth energetic expressions of dissatisfaction, for in less than two months—on October 29th—a new project was announced. The coinage of pure copper was stopped, and in its place a new alloy was ordered containing 20 grains of silver to the marc ($\frac{1}{230}$), to be worked into 51 pieces of 16 maravedis, and smaller coins in proportion. The existing *calderilla* and *vellón grueso* were allowed to remain in circulation, to be gradually worked over into the new coinage as they should reach the treasury. The new issue was styled *moneda de molino de vellón ligado*—mill money alloyed—shortened into *moneda de molino*,* and

* It seems to have been not long before this that the mill or machine for stamping was introduced, enabling coins to have a raised and milled edge, to check clipping. In the Indies the primitive *labor de martillo*, or hammering process, was maintained until 1728,

added to the confusion by furnishing a third debased coinage, for of course the two older ones remained in circulation. The country speedily was flooded with the new currency, and prices began to rise still higher.¹ Some relief was necessary, and, as usual, it was applied in a violent and summary manner. A *pragmatica* of 1664 reduced the value of the new *moneda de molino* by one half—the 16-maravedi piece was to pass for only 8; for thirty days it would be received at the old rate by the treasury in settlement of overdue debts and taxes up to the end of 1662; after thirty days it would be accepted only at fifty per cent of its face, and the Royal Council was vaguely ordered to adopt such measures as it should deem wise to prevent injustice between buyers and sellers, debtors and creditors. As there ought to be only one base-metal currency, moreover, the edict prohibited the further use of the *calderilla* and *véllón grueso*—those coinages which had undergone so many vicissitudes, and which, in spite of prohibitions, persistently continued in circulation. They were a shirt of Nessus, clinging to the victim and impossible to discard.

Again the load became too onerous to be endured, and relief was imperative. The mints were pouring forth the *molino* money; there were quantities of it in circulation of pure copper illegitimately issued, and the land was filled with imitations brought from abroad. To remedy this, a decree of February 10, 1680, orders the simultaneous registration and sequestration of the whole, carefully distinguishing the three varieties. The first, or legitimate alloyed coin, was reduced to one fourth of its existing value—that is, the piece which had been originally issued for 16 maravedis, and had in 1664 been cut down to 8, was now still further diminished to 2; the same was done with the native counterfeits, while the foreign ones were accepted at one eighth of their current value. To soften the blow to the holders the legitimate *molino* was redeemable at the treasury in gold or silver at fifty per cent premium, and was receivable for sixty days for all overdue debts to the fisc up to the end of 1677, while, as a further act of grace, arrearages due up to the end of 1673, amounting to over 12,000,000 ducats, were forgiven.

This measure appears to have been designed as a preliminary to the total extinction of the *molino* money, for it was followed, May 23d, by an elaborate *pragmatica* demonetizing this wholly and forbidding its use, only twenty-four hours being allowed during which it could be spent for the purchase of bread, meat, and wine, and for nothing else. In all these efforts at contraction it was expected that the inflated prices, which were a standing grievance, would collapse with the diminution in the circulating medium, and when this result did not follow with sufficient rapidity, there

when mills were ordered to be erected. Where practicable, these were run with water power; when this was not available, by mules.

was no hesitation in fixing a scale of *maxima*, for the transgression of which heavy penalties were threatened. Thus on the present occasion a most elaborate edict was issued, November 27, 1680, consisting of over a hundred folio pages, regulating all dealings. All rents in Madrid are to be reduced to what they had been in 1670, and for buildings of later construction or enlargement the rates are to be determined by the magistrates. Then follows a most extensive list of maximum prices, embracing nearly three thousand items, from raw materials by wholesale to finished products by retail, from wool by the *arroba* to rhubarb by the drachm, and including what a tailor should receive for making a coat and a washerwoman for washing a shirt. Such supervision by the state becomes endless, and a supplementary edict was requisite, May 2, 1681, supplying omissions and making changes. If currency and values were capable of governmental regulation, it would have been accomplished by Spain.

All this time the prohibited *calderilla* and *vellón grueso* were in circulation, the latter running 74 maravedis to the marc, or about 56 cents of our money to the pound, while copper was worth about 29. The legalized premium on gold and silver was still fifty per cent. Even copper was now becoming scarce under the ceaseless labor of the mints. A proclamation of May 14, 1683, sets forth that it is for the common benefit to have abundance of copper money; and, in order that all the metal in the kingdom may be thus utilized, all pieces of copper brought to the mints will be paid for at the rate of $3\frac{1}{2}$ ryals of *vellón* for the pound. To prevent its being wasted by consumption in the arts, all coppersmiths are forbidden to manufacture articles of it, or to repair old ones that may be brought to them to be mended. Their shops are to be visited, and their stocks of metal seized and paid for at the above price; inventories of their finished work are to be drawn up, and sixty days allowed for the sale of the articles. Anything concealed is declared to be forfeited, and severe penalties of fine, confiscation, and exile are decreed for evasions or infractions of the order. A false financial system had brought Spain to such a pass that, with the wealth of the Indies pouring into her lap, gold and silver had been driven from circulation, and she was ransacking the shops for scraps of copper to keep her mints busy.

These resources proved insufficient to supply the ever-growing demands of a depreciated currency, and resort was had to remonetizing the *molino* alloyed coinage which had been prohibited in 1680. By an edict of October 9, 1684, it was restored to circulation at a valuation double that which it had borne prior to its demonetization, which would seem to render superfluous an accompanying threat of penalties for its exportation, the same as for gold and silver.

Having thus apparently exhausted the possibilities of copper inflation, attention was turned to gold and silver which had hitherto been but little tampered with. A *pragmatica* of October 14, 1686, ordered a reduction of weight of twenty-five per cent in the silver ryal by working 84 to the marc in place of 67. The existing pesos or pieces of eight were rechristened crowns, and were ordered to pass for ten ryals, and the smaller coins in proportion. This was purely an inflation measure without any view of reducing the discount on vellón, for the fifty per cent premium was ordered to be applicable to the new light-weight silver coins, of which the piece of eight was declared equivalent to twelve ryals vellón, and the old one, now called a crown, to fifteen. No change was made in the weight of the gold coinage, but the value was raised to correspond, the single doubloon, or gold crown, being declared worth nineteen silver ryals in place of fifteen, and a month later it was further raised to twenty. In this reduction of the standard the interests of the debtor class were tenderly guarded by decreeing that outstanding obligations in gold or silver could be settled on the new basis. Some concession, however, was made on this point where suits arose as to specie lying on deposit or bills of exchange drawn in silver or gold prior to the depreciation, for these were ordered to be paid at the old standard.

The War of Succession, which broke out in 1701, naturally brought large quantities of French silver into Spain. The *quart d'écu* was held for a time to be equivalent to the two-ryal piece, and came to be known as the *peseta* or little peso, but it was pronounced to be inferior in value, and in 1709 its further introduction was prohibited. At the same time the silver standard was reduced to eleven dineros or .91667 fine in place of the .925 at which it had stood for centuries. This did not arrest the progressive depreciation of the vellón currency, which in 1718 we find legally recognized in the equivalence of a silver ryal to nearly two ryals vellón, and not long afterward the regular exchange was as one to two. This was allowed by law, and it doubtless was frequently exceeded, for dealers kept the copper coin in bags representing fixed amounts, and those who preferred gold or silver were charged extra for it. This would have worked comparatively little evil if the inferior currency had been confined to the petty traffic for which it was originally designed, but for more than a century it had become the standard of value and the precious metals had been rendered merely a commodity. Thus in the regulations of the mints the salaries are all defined in *reales de vellón* or *escudos de vellón*, and the treasurer has to give security in twenty thousand *ducados de vellón* on unincumbered real estate. It was always necessary, when mentioning a sum, to specify whether it was in *reales de vellón* or *reales de plata*, and

with the complexities which crept into the silver coinage we even sometimes find a further definition required, as in such expressions as “*un real de plata provincial, valor de 16 quartos de vellón.*” The evils entailed by the system were freely admitted, but the country had been plunged so long into this financial debauchery that recovery seemed impossible. In 1718 Philip V acknowledged the grave injuries which it inflicted on trade and commerce, but the remedy which he proposed was futile. In 1743 he again deplored the manner in which greed and malice had used the increase of copper money to drive silver from circulation and reduce it to the condition of merchandise. To remedy this he ordered that payments in vellón should not exceed 300 ryals, and he forbade any charge for exchanging the metals under the same penalties enjoined by the law of November 14, 1652—confiscation and loss of citizenship. It was in vain; the distinction between the coinages was too firmly established, and the tendency was even to increase the premium on the precious metals. In 1772 Charles III, in issuing a new gold coinage, prescribes that the gold crown shall be worth $37\frac{1}{2}$ vellón ryals, and as it was equal only to 16 silver ryals, this shows a premium of over one hundred per cent.

The question of the premium on silver was further complicated by tampering with the silver coinage. In 1726 it was ordered that the *peso* or piece of eight should be counted for 9·5 ryals; the small silver coins of two ryals and less were worked 77 ryals to the marc, in place of the old weight of 67, and only 10 dineros fine in place of 11, thus lowering them to twenty per cent below the standard; and in 1728 the fineness was further reduced to 9 dineros (22 grains), or 0·798, increasing the deficiency to twenty-five per cent. The mintage of the Indies, principally in the larger pieces, was not reduced, and thus there came to be two kinds of silver coinage, known as the *nacional* or heavier, and the *provincial* or lighter. Between these there was a recognized difference of twenty per cent, the *real de plata nacional* being worth 2·5 vellón ryals, or 20 quartos, while the *real de plata provincial* was only worth 2 vellón ryals, or 16 quartos. There were thus three established currencies of different values, two of silver and one of copper, and for awhile there was a fourth, for we hear, in 1728, of a new coinage popularly known as *Marias*, which is ordered to be demonetized by July 1st next ensuing. The order, as usual, was disregarded, for in 1736 it was repeated, with a prohibition to draw bills of exchange in the forbidden currency.

The depreciation of the ryal has survived, to modern times, the revolution in the currency, which has become decimal, and is modeled on that of France. The *peseta* is the equivalent of the franc, worth approximately twenty cents in our money, and when ryals are quoted they are a fourth of the *peseta*, or five cents, thus being only two fifths of their nominal value in silver. Whether

the vellón ryal has ceased to be the standard money of account I can not say, but I happen to have before me a draft drawn through the Bank of Spain, December 17, 1858, in Madrid on Jaen for "*la suma de tres mil reales de vellón en plata ú oro,*" showing that accounts were still kept in vellón and that every transaction involved a conversion of this into specie.

There can be no exaggeration in attributing to these perpetual fluctuations in the standard of value a leading part in the industrial and commercial decadence of Spain. During the period we have traversed, Spain was the chief source through which Europe derived the precious metals, yet it could never retain them, in spite of savage laws prohibiting their export; its people were forced to content themselves with a debased coinage, and at times it could scarce procure enough copper to supply even this. Commercial and industrial enterprise was impossible when no one could know from day to day what was to be the value of the money which was due to him, or in which he was to meet his obligations, and consequently the magnificent resources of the land remained undeveloped, while the rest of western Europe was entering on the modern era of industrialism. Once embarked on such a vicious course, return to a permanent standard was too painful a process to be endured, and the efforts made toward it from time to time only aggravated the trouble by increasing the uncertainty, for the distress which they caused was too acute for even Spanish endurance. Thus it dragged on from century to century, while the wealth of the Indies enriched the nations whose commercial instincts taught them the essential necessity of an unvarying standard of value. This was no new discovery, for the long-enduring prosperity of Florentine manufactures and commerce was largely attributable to the jealous care with which the republic preserved the purity and weight of its coinage, so that the florin became a recognized standard throughout Europe, the honesty of which no one ever questioned. Florence had learned the lesson from the Byzantine Empire, whose historian, Mr. Finlay, asserts that its prolonged duration was greatly owing to the wisdom which preserved its coinage unaltered for eight centuries, so that "the concave gold byzants of Isaac II (1185-1203) are precisely the same weight and value as the solidus of Constantine the Great." With the Latin conquest in 1204, barbaric recklessness was introduced from the West, and successive debasements of the coinage accompanied the decay and extinction of the empire of the Cæsars. Spain affords an exceedingly instructive example of the opposite, inasmuch as its trouble arose from a token currency of small denominations which was incautiously allowed to expand until it dominated the whole financial system, to the exclusion of the precious metals.

Appletons' Popular Science Monthly.

For the last half century scientific methods of study have been gradually extending, until they are now applied to every branch of human knowledge.

The great problems of society are making urgent demands upon public attention. Science furnishes the only means by which they can be intelligently studied.

This magazine gives the results of scientific research in these and other fields. Its articles are from the pens of the most eminent scientists of the world.

It translates the technical language of the specialist into plain English suitable for the general reader.

Among the subjects discussed in its pages are. Psychology, Education, The Functions of Government, Municipal Reform, Sumptuary Legislation, Relations of Science and Religion, Hygiene, Sanitation, and Domestic Economy, Natural History, Geography, Travel, Anthropology, and the physical sciences.

Prominent among its recent contributors are such men as

ANDREW D. WHITE,
DAVID A. WELLS,
APPLETON MORGAN,
JAMES SULLY,
WILLIAM T. LUSK, M. D.,
FREDERICK STARR,
GARRET P. SERVISS,
DAVID STARR JORDAN,

EDWARD ATKINSON,
HERBERT SPENCER,
EDWARD S. MORSE,
T. MITCHELL PRUDDEN, M. D.,
C. HANFORD HENDERSON,
CHARLES SEDGWICK MINOT,
G. T. W. PATRICK,
M. ALLEN STARR.

50 cents a number; \$5.00 per annum.

D. APPLETON & CO., Publishers, New York.

